or older and were diagnosed as diabetes during July 2008 – June 2011 with receiving glucose lowering agent were included. All included patients were categorized into thiazolidinedione (TZDs) and non-TZDs groups. PS were estimated by conventional and time-specific approaches. In the time-specific approach, PS was separately estimated into 3 groups by calendar time. The pair t-test was used to compare the PS of both approaches. Patients were matched using caliper nearest neighbor matching with no replacement. The multivariate Cox proportional hazard model was used to determine the adjusted hazard ratio of cardiovascular hospitalizations of TZDs and non-TZDs in matched cohorts. **RESULTS:** A total of 2165 patients were included in this study. Patients were on average 58.8 ± 12.7 years of age with 44.5% of male. The average conventional PS was 0.198, which was significantly lower than the average time-specific PS of 0.209.For CVD-related hospitalization, the adjusted hazard ratio (HR) of conventional PS-matched cohort was 1.05 (95% confidence interval (CI); 0.38 – 2.89), while that of time specific PS-matched cohort was 1.12 (95%CI; 0.43 – 2.92). **CONCLUSIONS:** Propensity scores estimated by conventional and time-specific approaches were different. The different PS approaches could lead to different estimates of treatment effects.

RESEARCH POSTER PRESENTATIONS – SESSION I
RESEARCH ON METHODS STUDIES

RESEARCH ON METHODS – Clinical Outcomes Methods

PRM1
THE IMPLICATIONS OF EVALUATING MEDICATION ADHERENCE AT DIFFERENT DRUG CLASSIFICATION LEVELS

Lou Y[1], Huang Z[2], Wang S[2], Taitel M[1]
[1]*Walgreen Co., Deerfield, IL, USA,* [2]*Walgreens Co., Deerfield, IL, USA*

OBJECTIVES: Proportion of days covered (PDC) has gained increased popularity as a key measure of medication adherence. The Centers for Medicare and Medicaid Services (CMS) now uses PDC to measure medication adherence for quality improvement in Medicare Part D. PDC can be calculated at various drug classification levels such as a particular drug (e.g. metformin, glipizide) or a broad therapeutic class (e.g. all oral anti-diabetes drugs). The objective of this analysis is to show how PDC calculations at different drug levels can result in varied adherence estimates. **METHODS:** The analysis used a sample of claims data for all oral anti-diabetes drugs from a national pharmacy and defined drug levels using Medispan's Generic Product Identifiers (GPI). Three methods were used to calculate PDCs. In method 1, PDC was computed for each GPI6, and then rolled up to the patient level using weighted averages. In methods 2 and 3, PDC was calculated for the entire therapeutic area of oral anti-diabetes drugs. Method 2 used GPI6, and method 3 used GPI10 to determine the drugs; any medication overlaps between different drugs were ignored to avoid double counting and any medication overlaps within the same drug were pushed out to make adjustment in the days covered. **RESULTS:** PDC was 0.64 for method 1 and 0.69 for both methods 2 and 3. Compared to method 1, PDCs from method 2 and 3 were 5% higher (N= 188,121, *P-value* < 0.0001). Among patients with 1 or more distinct GPI6s, the difference was even bigger – PDCs from method 2 and 3 were 10% higher (N= 90,064, *P-value*< 0.0001) than that from method 1 (0.75 vs. 0.65). **CONCLUSIONS:** PDCs at varied drug levels could lead to different medication adherence estimates and impact conclusions about medication adherence, especially for patients who switch drugs within a drug class or use combination therapies.

PRM2
COMPARISON OF TWO METHODS FOR IDENTIFYING PROBLEMATIC OPIOID USE AMONG AN OPIOID-TREATED CHRONIC PAIN POPULATION

Ruetsch C[1], Tkacz J[2]
[1]*Health Analytics, Columbia, MD, USA,* [2]*Health Analytics, LLC, Columbia, MD, USA*

OBJECTIVES: In recent years, addiction and problematic use of prescription opioid analgesic medications has increased. Using medical and pharmacy claims data, the purpose of this study was to compare two methods of characterizing problematic opioid use among a commercially insured chronic pain patient population. **METHODS:** A national managed care organization provided medical and pharmacy data for individuals with chronic pain and an opioid prescription fill during calendar years 2009-2011. Members were placed into one of two problematic opioid use groups based on the following criteria: "Doctor Shopping" (n = 552), defined as the filling of opioid prescriptions from five or more different prescribers within 12 months; and "Rapid Dose Escalation" (n = 741), defined as a 50% increase in opioid dose in the first 3 months of treatment, or 100% increase in dose during the 12-month post-period. Groups were compared on the patient characteristics of age, gender, Charlson Comorbidity, and region of residence, and on the change in health care service utilization and expenditure over an 18-month period. **RESULTS:** Members in the Doctor Shopping group were significantly more likely to be female than members in the Rapid Dose Escalation group (57.1% vs. 51.3%; $p < .025$), and also incurred significantly greater increases in emergency room charges ($810 vs. $265; $p < 0.005$). The two groups did not differ on any remaining demographics or service utilization estimates, including inpatient admissions, days, and costs; office visits and costs; outpatient hospital visits and costs; total prescription and opioid-specific costs and days' supply; total health care costs; and the Charlson (p's > 05). **CONCLUSIONS:** Results revealed only slight differences in demographic makeup and health care expenditure across the two problematic opioid use groups, suggesting the successful identification of a single, homogenous group. The use of either method alone would likely underestimate the prevalence of this burgeoning problem.

PRM3
THE EFFECT OF REDESIGNED COMPUTERIZED DRUG-DRUG INTERACTION ALERTS ON MEDICATION ERRORS AND PRESCRIBING EFFICIENCY

Chen S[1], Zillich AJ[1], Melton BL[2], Saleem JJ[1], Johnson E[2], Weiner M[1], Russell SA[1], McManus MS[1], Doebbeling BN[1], Russ AL[1]
[1]*Richard L. Roudebush VA Medical Center, Indianapolis, IN, USA,* [2]*Purdue University, West Lafayette, IN, USA*

OBJECTIVES: Computerized medication alerts, such as drug-drug interaction (DDI) warnings, are intended to improve decision-making at the time of prescribing and enhance patient safety. The alert interface influences prescribers' perceptions of warnings, but the interface design of DDI alerts is largely unstudied. The objectives were to conduct a simulation study to evaluate whether design changes reduce medication errors and improve prescribing efficiency. **METHODS:** We conducted a counterbalanced crossover study with outpatient prescribers to evaluate two different DDI alert designs. Redesigned alerts incorporated human factors principles such as guidelines for warning design; the original alert design served as the control. During the simulation, Veterans Affairs outpatient prescribers completed three fictional patient cases using both the original and the redesigned alerts. We used six clinically relevant DDI alerts of varying severity. Prior to data collection, each DDI was assigned correct and incorrect actions to evaluate medication errors. The primary outcome was medication errors defined as the number of incorrect actions over the number of alerts prescribers received. A secondary outcome was prescribing efficiency, defined as the time spent reviewing and resolving all alerts within one patient case. The original and redesigned alerts were compared using McNemar's test for medication errors and Wilcoxon signed-rank test for efficiency. **RESULTS:** Twenty prescribers (14 physicians, 4 pharmacists, and 2 nurse practitioners) completed patient cases for both designs. Medication errors were significantly reduced with redesigned alerts (27.5%) compared to the original alerts (47.4%; p<0.001). Median time spent on redesigned alerts was 52 seconds compared to 97 seconds for the original alerts (p<0.001), saving prescribers 45 seconds per case. **CONCLUSIONS:** Based on this simulation study, incorporating human factor principles into computerized medication alert systems may improve prescribing and patient safety. Evaluation of redesigned alerts in a clinical setting is needed to understand the effects during actual patient care.

PRM4
TO STUDY THE OUTCOME OF HOSPITALIZATION IN ISCHEMIC VERSUS HEMORRHAGIC STROKE

Gupta SK[1], Sharma K[2], Mukherjee JD[3]
[1]*DIPSAR, University of Delhi, NEW DELHI, India,* [2]*DIPSAR, NEW DELHI, India,* [3]*Max Super specialty hospital, New Delhi, India*

OBJECTIVES: To assess and compare the functional outcome/recovery of ischemic and intracerebral hemorrhage at discharge from hospital, using modified rankin scale and barthel index. **METHODS:** In the present retrospective study, 140 stroke patients (110 patients of infarction including patients of Transient Ischemic Attack and 30 hemorrhage patients) were enrolled, their medical records studied and were compared for risk factors, disability at discharge, groups' length of stay and mortality. Mean scores on both, Modified Rankin Scale (mRS) and Barthel Index (BI) were determined at admission and discharge and then compared using paired ttest. Ischemic group was also sub-divided into 2 groups on the basis of treatment with tissue plasminogen activator (t-PA) and their scores were also compared with same test. Good (mRS score <2 and BI score > 60) or poor outcome (mRS score >2 and BI score < 60), were distinguished in both the stroke groups using on both scales. **RESULTS:** Ischemic stroke patients had higher mean score on Barthel Index (70.2, p=0.0026) and lower mean score on Modified Rankin Scale (2.3, p=0.000) at discharge compared to hemorrhage patients (BI score = 36.67 and mRS score = 3.7). Hypertension was determined as the most prevalent risk factor in both the stroke types. CAD, atrial fibrillation, previous stroke, diabetes mellitus, alcohol were other major factors. ~65% ischemic stroke patients were discharged with a good outcome whereas only 30% patients in the hemorrhage group were discharged with a good outcome. Patients treated with t-PA experienced better outcome than the patients managed conservatively. **CONCLUSIONS:** The results provide evidence of better functional outcome and recovery in ischemic stroke patients at discharge and greater risk of mortality in patients with intracerebral hemorrhage.

PRM5
COMPOSITE ENDPOINTS IN TREATMENT OF TYPE-2 DIABETES

Einarson TR[1], Hemels M[2]
[1]*University of Toronto, Toronto, ON, Canada,* [2]*Janssen Cilag, Birkerød, Denmark*

OBJECTIVES: Composite endpoints (CEPs) are being used more frequently in describing outcomes for trials of drugs in type-2 diabetes. We reviewed the literature on CEPs to determine how they have been used to date on currently marketed antidiabetics. **METHODS:** Medline, Embase and Cochrane databases and Clinicaltrials.gov were searched for randomized controlled Phase-3 trials of currently marketed incretins, which were grouped by class. We sought trials of GLP-1 agonists, DPP-4 inhibitors and SGLT-2 inhibitors. CEPs used were identified as well as numbers and percentages of patients achieving each, the time of measuring the CEPs and the comparison drugs involved in those trials. **RESULTS:** Twelve studies involving 5611 patients provided data. Drug classes included GLP-1 agonists (exenatide 10 mcg twice daily, exenatide 2 mg weekly, liraglutide 1.2 mg daily, and liraglutide 1.8 mg daily), DPP-4 inhibitors (sitagliptin 100 mg daily). No studies were found in the literature reporting CEPs for SGLT-2 inhibitors. Approximately 18% of patients were treated as first line therapy, 55% as second line, and 27% as third. Active comparison drugs and background treatments included insulin, metformin, sulfonyluyreas, and thiazolidinediones. Eleven different CEPs were used (6 with 2 components, 5 with 3 components). All CEPs